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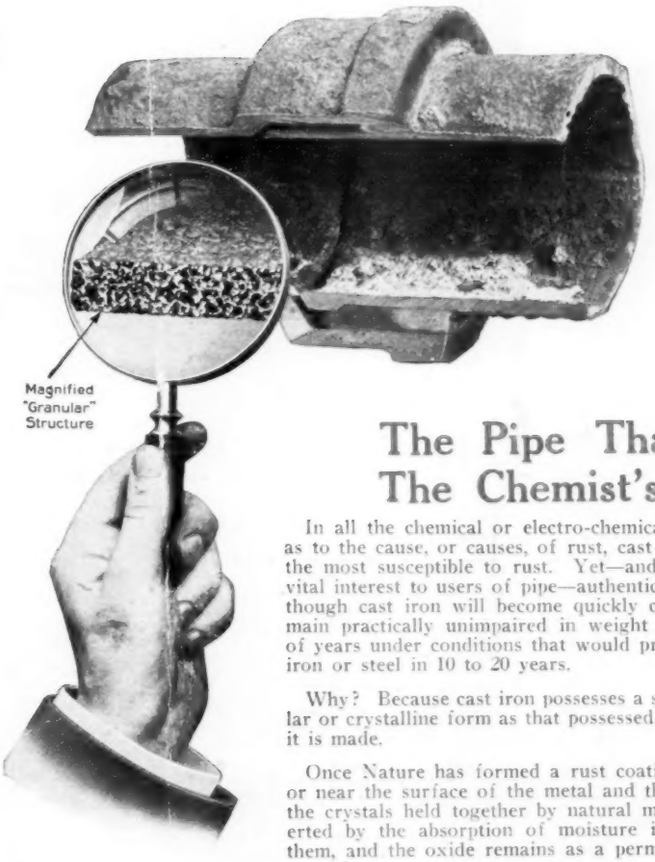
CAST IRON PIPE 73 YEARS IN SERVICE

AS GOOD AS NEW



THE FIRST CAST IRON PIPE EVER MADE IN THE WORLD'S HISTORY IS STILL IN SERVICE
SERVICE
CAST IRON PIPE
MEASURED BY
CAST IRON PIPE
CENTURIES
MORE THAN 250 YEARS OLD

The Pipe That Upsets The Chemist's Theories

In all the chemical or electro-chemical theories so far advanced as to the cause, or causes, of rust, cast iron has been shown to be the most susceptible to rust. Yet—and right here is the point of vital interest to users of pipe—authentic, historical facts prove that though cast iron will become quickly coated with rust, it will remain practically unimpaired in weight and strength for hundreds of years under conditions that would prove fatal to rolled wrought iron or steel in 10 to 20 years.

Why? Because cast iron possesses a structure of the same granular or crystalline form as that possessed by the iron ore from which it is made.

Once Nature has formed a rust coating of the loose crystals on or near the surface of the metal and the oxide penetrates between the crystals held together by natural metallic bonds, the force exerted by the absorption of moisture is not sufficient to separate them, and the oxide remains as a permanent coating.

Rusting is slow combustion. Combustion cannot take place without the presence of oxygen. Nature's own protective coating, by excluding oxygen, prevents combustion.

Chemists have their theories, but Nature has her laws, and when cast iron pipe is used under ground, it is only "going back home," where it has lived in its crude form (ore) for untold centuries.

The Cast Iron Pipe Publicity Bureau

1 Broadway, New York

INDEX TO CONTENTS, PAGE 286 ADVERTISERS' INDEX, PAGE 18

KOPPERS

BY-PRODUCT
COKE AND GAS OVENS

The most efficient method of carbonizing coal is in KOPPERS OVENS and the best coke and by-products are produced by this process.

H. KOPPERS COMPANY
Pittsburgh, Pa.

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By-Product Coke and Gas Plants
Tar Distilling Plants
Ammonia Recovery Plants
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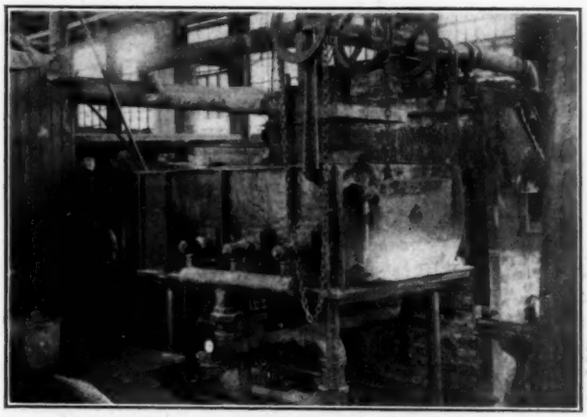


FIG. 3. GAS FORGE ABOUT ONE-SIXTH SIZE OF ABANDONED COAL FORGE

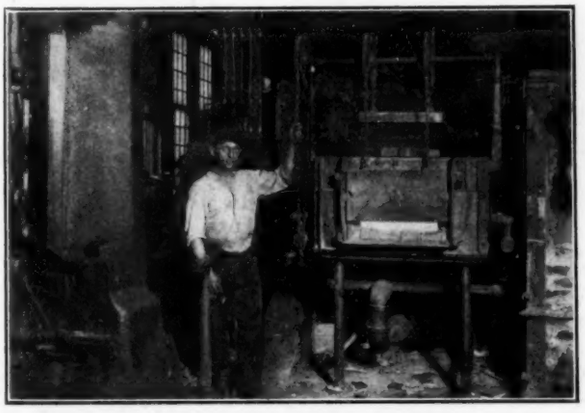


FIG. 4. STARTING COLD, CHARGED FURNACE CAN BE BROUGHT TO FORGING TEMPERATURE IN 45 MINUTES

Preheating Effect Secured by Combining Functions of Hopper, into Which Pieces to be Treated are Charged, with Flue in Gas-Fired Furnace for Small Steel Forgings

Material Saving in Fuel—Starting From Cold Furnace, Forging Temperature Attained in Gas Installation in 45 Minutes—2122 Pieces Handled in 9 Hours as Against 1400 Pieces in Same Period by Coal Forge

By A. J. DE GHEQUIER

Engineering Department, Surface Combustion Company, Long Island City, N. Y.

A highly satisfactory gas furnace installation, designed for the heating of small steel forgings, has recently been made at the Philadelphia plant of a large hardware manufacturing company. Heretofore the utilization of gas for this purpose has been found too expensive, in comparison with oil and coal, chiefly on account of a lack of suitable and efficient gas furnaces.

The details of the gas forge herein described are shown in Fig. 1 and 2. At the back of the furnace the brick work is constructed so as to form a combined flue and hopper, which is kept charged with the work to be heated. The furnace gases in escaping circulate among the pieces and a pre-heating effect is obtained. A material saving in fuel is thereby accomplished. The work is pulled into the furnace zone proper as often as necessary, where it reaches a forging temperature in a comparatively short time. A slight furnace back-pressure is maintained to preclude the possible admission of cold air, which would tend to lower the efficiency and promote the formation of scale.

Space Economy

Fig. 3 and 4 show the gas forge in operation. It is about one-sixth the size of the abandoned twin-hearth coal forge formerly in use, which can be seen adjacent to it. The furnace is much easier to operate, and re-

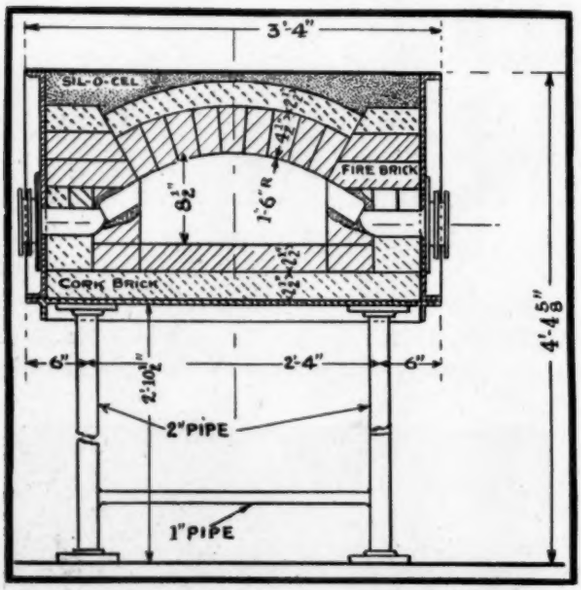


FIG. 1. CROSS-SECTION SHOWS DETAILS OF FURNACE CONSTRUCTION

quires practically no attention after the desired working conditions are obtained. The burners are supplied with a homogeneous mixture of gas and air by an automatic proportioning device, adjusted in this case to maintain a slightly reducing furnace atmosphere in order to minimize scale formation. The quality and quantity of the "mixture" is controlled by the Surface Combustion high pressure control devices, to which gas is supplied at approximately 10 lb. pressure by a gas compressor or "booster."

Starting with a cold furnace charged with work, a forging temperature can be reached in about 45 minutes. Fifty per cent increased production is easily obtained with the same number of men required for the coal forge, two hammers being supplied instead of one. The work is also of much better quality, i.e., there is much less trouble with scale formation. Operating conditions are much improved. Absence of the intense and objectionable heat characteristic of the coal forge makes sustained furnace operation most favorable for the men.

EFFICIENCY COMPARISON

Taking the average daily production of the two types, the comparison of the overall efficiencies is quite interesting. In this instance, the material to be heated consisted of steel blocks about ⅝ in. thick and weighing 1.03 lb. each. In nine hours the gas furnace heated 2,122 pieces, or 2,185 lb., with a consumption of 4,500 cu. ft. of 600 B.t.u. city gas. This corresponds to an overall efficiency of 25.23 per cent. It is probably not amiss to add that the work accomplished does not by any means represent the capacity of the furnace. These results were obtained with a gas rate a little above the minimum operating limit.

The coal forge in nine hours turned out about 1,400 pieces, or 1442 lb., with a consumption of about 500 lb. of a coal mixture composed of one part Bituminous and three parts Buckwheat anthracite having an approximate heating value of 13,500 B.t.u.'s, giving an overall efficiency of 6.84 per cent.

The comparative cost of the fuel for the coal and gas forges is about 1 to 3 respectively, but the increased production and superior operating advantages have been found to more than offset the higher cost.

The installation was made at the plant of the Enterprise Manufacturing Company, Philadelphia, Pa., by the Surface Combustion Company, Long Island City, N. Y.

Gas Investigation During Year Costs City of Chicago $131,932

Chicago spent $131,932 on her gas investigation this year, according to a compilation made public last week by City Comptroller Eugene R. Pike. Of this amount $123,000 was spent in eight months by the litigation committee of the city council in pushing litigation against the Peoples Gas Light & Coke Company and in determining "a reasonable rate" for gas. During the same period the council committee on gas, oil and electric light spent $8,600. Some of the expenditures in this connection were: $85,000 for engineering, $31,000 for accounting, $8,300 for attorney's fees and $7,200 for other expenses.

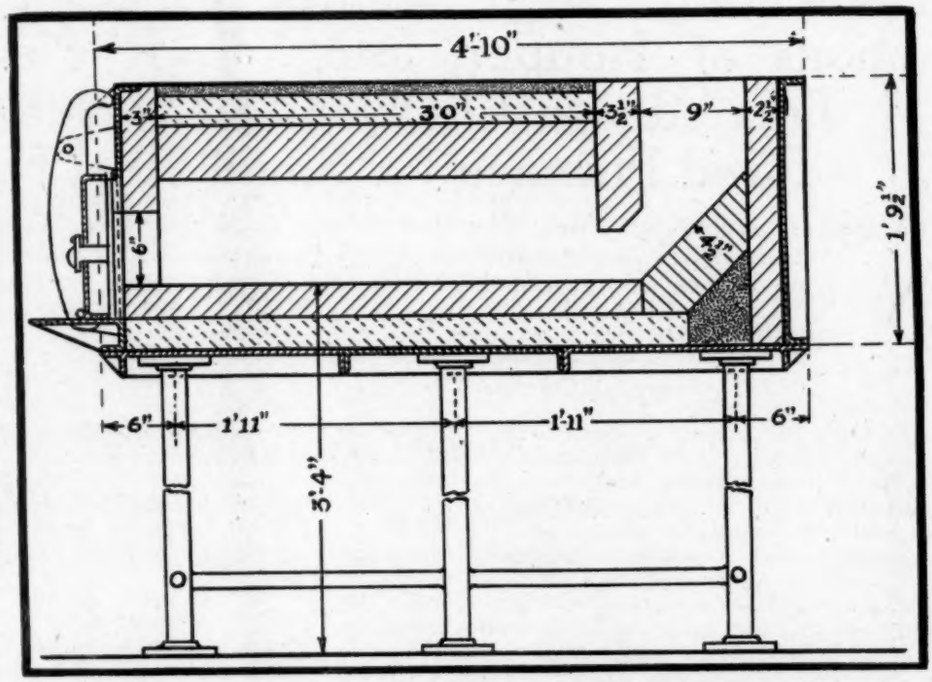


FIG. 2. NOTE CONSTRUCTION OF BRICKWORK AT BACK OF FURNACE IN SUCH MANNER AS TO RESULT IN COMBINED FLUE AND HOPPER

Oil Burning Ranges Demolished and Battery of Fifteen Gas Ranges Installed in Hotel Kitchen in Two Nights Without Interfering with Service

Management of San Francisco's Leading Hotel Finds Comparative Fuel Cost of Very Slight Importance in Comparison with Advantages of Gas for Cooking—Dollar a Day Saved in the Cost of Cleanser for Pots and Pans Alone

Those who have visited San Francisco, Cal., do not have to be told what kind of a hostelry the New Palace Hotel is, nor have the high quality of the service it renders described. Recently this hotel has changed over from oil-burning cooking equipment to gas.

The work, as described by H. P. Pitts, industrial engineer for the Pacific Gas & Electric Company in *Pacific Service Magazine* for August, was completed in two nights, without any interruption in the hotel service whatever. It involved the destruction and removal of the existing oil-burning ranges, the running of 4 and 6-in. service pipes into the building and above a false ceiling, in which the workmen had only 2 ft. of space to work in, and the placing of a battery of 15 gas ranges in one solid row.

The oil ranges had been doing the work with a certain degree of satisfaction, or, as Mr. Pitts states it, they were cooking the food.

Comparative Fuel Costs of Little Relative Importance

The gas company representative demonstrated to the management that it was not a question of comparing the actual difference in cost of the fuels, but that the comfort of the cooks should be considered, and that they should not be compelled to work over a red hot range, as in the case of oil cooking with its intense heat, having their ears deafened by the noise of the steam-oil burners. It was shown that the modern type of gas range is operated with a lack of intense heat from the red hot tops, that it is noiseless and smokeless, and with an entire absence of soot and grit coming in contact with the food and blackening the walls and ceilings.

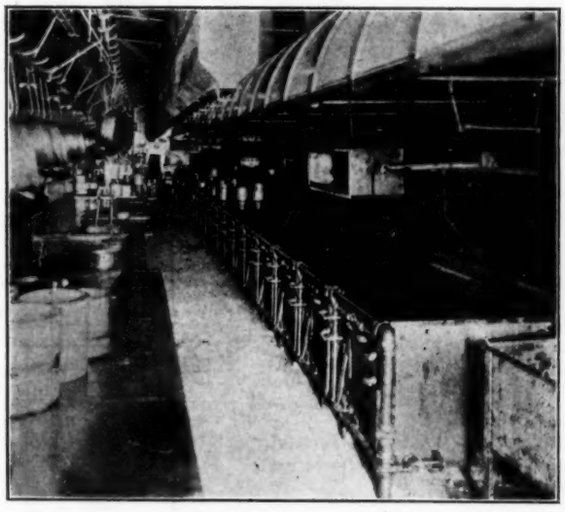
Another point brought out was that by using gas the management would be saving an immense amount of expense in redecorating the walls and ceilings. Stress was also laid upon the long life of copper cooking vessels placed on the top of the gas range as compared with the rough and uneven top of the oil range; also the difference in cost of cleaning utensils, labor and material. Experience in operation has brought out the fact that this last argument is a point of no little importance as a saving of a dollar a day has been effected in one cleaning compound used for cleaning pots and pans alone.

The installation of the kitchen battery later has led to the installation of a battery of three ranges for the employees' kitchen.

Insuring Adequacy of Gas Supply

The question as to whether the existing gas service into the hotel was of sufficient capacity to supply the ranges was first taken up. Investigation showed that one existed, but it was not of ample size nor was it in the proper location.

Means of extending a service from the mains in a different location were devised, and in order to insure against any interruption in service a tie-in line was projected along a narrow street in which there was constant traffic.



GAS RANGES AFFORD BETTER WORKING CONDITIONS TO KITCHEN FORCE AND REDUCE AMOUNT OF RENOVATION NECESSARY

A short run was made in one night crossing this narrow street and carrying a 6-in. pipe into the hotel and making a temporary connection. The next night the tie-in extension was connected, and after forty-eight hours of constant work, all of which was done in a pouring rain, the service department had completed its work, insofar as an ample supply of gas was concerned.

During the time that the outside work was under way plumbers were busy inside the hotel running the house pipes, which were of 4 and 6-in. diameter. Several hundred feet of this pipe had to be run above false ceilings in which the workmen had only 2 ft. of space to work in and therefore had to perform their labors while lying flat.

Red-Hot Oil Ranges Removed by Sledge Hammer

The work of destroying and removing the existing ranges and placing the new ones had to be done at times when it would not inconvenience the cooks in the kitchen, for the meals had to be prepared and served as usual and no cook was to be hampered in his work. The company was notified that cooks would be at work at 6 a. m. on the following day and would expect to resume as usual. The plan was that every effort should be made to tear out the oil ranges and replace them with eight gas ranges the first night, and on the next night the remainder should be taken out and their places filled with the remaining gas ranges.

At 8 p. m. sharp the men were led up to a row of red-hot oil ranges and commenced the work of de-

struction. The sledge hammer was resorted to as the quickest manner in which this could be done.

An additional difficulty was encountered in making the gas range flue connections conform to the flue designs for the oil ranges. This was a piece of work that had to be cut to fit, for being secret flues the oil ranges had to be removed before their flue construction could be ascertained.

Previous to the commencement of the work a contract had been let to a well-known kitchen contracting firm, and it had finished its work to a point where immediately upon the removal of a section of oil range and the placing of the new section of gas range, the workmen took his measurements and raced back to the shop, where he got out and assembled a piece of sheet iron to suit the proper angle for connection to the main flue.

This went on throughout the night, men struggling with red-hot stoves, smashing them up, taking away the pieces, tearing out the old brick and sand, cleaning up and carting away all the debris in barrows.

Others with the gas range on a truck, sliding it into place, plumbers ready with pipe cut to the right length, made the gas connections, and sheet metal men dodging in and out made their flue connections. Eight times this process was gone through until at 5:30 in the morning the eight new gas ranges had been set up and put in operation. The next night at 8 o'clock the same thing was gone through again and the remainder of the ranges placed in position.

Re-Educating Cooks

The next morning found the cooks presiding over silent fires, with everything going on as usual except there was no trouble in operating and no debris.

At first it required patience to instruct the cooks in the use of gas, for they had been having the ranges lighted for them by a fireman and when they came on duty found them hot and ready for the day's work. The gas way, however, required no firing up early in the morning, eliminated the necessity of the fireman to clean out the burners, adjust the steam and do other incidental work.

With the installatilon of the gas ranges it was agreed that the company should provide the services of an operator in order that not only should the cooks be instructed in the use of the ranges, but that small adjustments might be made of burners changed to suit the different types of cooking. That this policy worked out well is demonstrated by the fact that the consumption of gas was reduced from 11 ft. per meal to 9 ft. The instructor spent thirty days in the kitchen, and left satisfied that the installation was eminently satisfactory all around.

Gas Company Publicity

The public must be educated to the fact that the gas company stands ready to act on any reasonable suggestion that may be made which will be either a benefit to the consumer or company, and that the gas company's object first, last and always is to have satisfied consumers.

It is up to every employee of the company from office boy to manager to see that every consumer he comes in contact with is not only satisfied, but is a friend of the gas company and a gas booster.

The public should be taught by acts and deeds that a utility company is not in business to rob them, and that every penny they pay for gas does not go into the pockets of the stockholders, but that a large portion of it is spent for improvements, such as running new gas mains, services, etc.

It should be taught that the company invites complaints as to service.

Every employee of the company who comes in contact with the consumer should have intelligence enough to put up a logical argument on behalf of the gas company against the assertions of the consumer as to pumping air in the mains or setting the meters so they will run fast, or anything pertaining to the company s business.

Most of the complaints received are not so much in criticism of the commodity we sell as of the method with which it is handled.

A well-known factor which the gas company has to confront, and one which has been borne in upon anyone who has spent any length of time in the service of a gas company, is that in the mind of the average citizen there is a deep-rooted prejudice. The average man that will talk sanely about all subjects will always put up an argument about a gas bill.

That is why a good, competent man should be paid a good salary. He can make more satisfied consumers in one day than all the letters and postals can do in a month.

The department that handles complaints should be in excellent condition; all complaints should be attended to as promptly as possible.

A second complaint coming from the same consumer within a short time should be attended to by a special man. Nothing makes a consumer more dissatisfied than being compelled to call up a second time just because the man that was there at the first call neglected his work.

The selling force can be a great help in making satisfied consumers. Too true, but many companies make a great mistake by employing untried salesmen. This is wrong.

It is a well-known fact that one good salesman is worth a dozen poor ones. This type of man by being in touch will all classes of consumers can do much to aid the feeling of the public in regard to the company or the manager.

A good solicitor, as a rule, will make return calls after a range or any other appliance is installed to see if it is in perfect working order and explain the operation of the same. This is surely appreciated by the consumer and causes a good feeling toward the company.

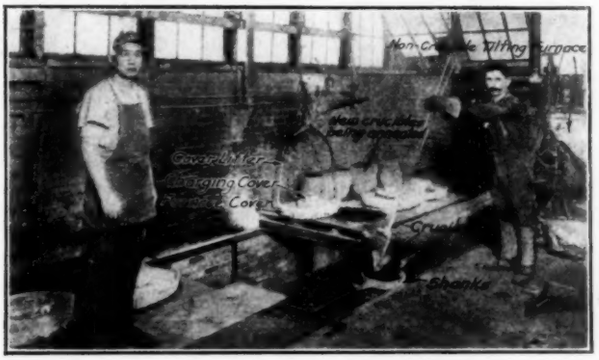
Our conclusion is, to convince the consumer of our sincerity, we must first give good gas service—the thing most needed. This, together with courtesy and plain, open-and-above-board dealings, will win for any gas company the confidence of the public.—*Energy*.

7,500 Mining Engineers and 15,000 Chemists Classified in Recent Government Census

The Bureau of Mines, Department of the Interior, at the request of the Council of National Defense, has just completed a census of mining engineers, metallurgists and chemists, with the result that 7,500 men engaged in mining and 15,000 men engaged in various chemical industries have been classified according to the character of work in which each one claims proficiency.

Even Where Fuel Cost for Gas Is Two and Three Times That for Coal Former Is Most Economical for Brass Melting

Samuel S. Amdursky Discusses Problems of Brass Melting Industry and Describes Work of Rochester Company in Replacing Raw Fuels by Gas—Prolonging Life of Crucibles an Important Factor Under Present Conditions



GAS FURNACES IN OPERATION

The controlling factor of a brass foundry is its melting furnaces, or its melting capacity, and one of the chief requisites, just as for any manufacturing establishment, is maximum production at minimum cost, asserts Samuel S. Amdursky, of the Rochester Railway & Light Company, in an article in *Gas & Electric News*, published by that company, for September. A foundry may be equipped with up-to-date moulding and core-making apparatus, but if the furnaces cannot be depended upon to produce a definite amount of material at definite intervals, no regulation or standardization of production can be obtained nor is to be expected.

Majority of Such Foundries Use Coal or Coke

The majority of the brass foundries are at present equipped with coal or coke-fired pit furnaces. This type is invariably built with an upright cylindrical chamber of some refractory material, the inside diameter of which is sufficiently large not only to hold a crucible, but also allow for packing the fuel around the crucible. In the bottom of the furnace is located a grate upon which the fuel rests, and the outside of the furnace is covered with a drumlike steel shell. A cast-iron collar which has an opening equal in diameter to the inside of the furnace is located on top of the furnace, and is equipped with a cast-iron circular cover which seals the opening. A flue connection leads from the furnace to the stack. Furnaces of this type are usually arranged in batteries of three or more, and are located in pits about 7 ft. deep, so that the tops of the furnaces are level with the floor. A run-way about three feet in width and the total depth and length of the pit covered with a grating of iron bars, is usually allowed for the removal of the ashes and the metal and also the repairing of the furnaces.

The operation of these furnaces is as follows: About 6.30 a. m. the furnace tender starts the fires with charcoal and wood, and when these are well burned, coal is "charged" and the crucible is inserted. The tender then begins to charge the crucible by placing in it scrap metal, borings, sprues and ingots. Lead, tin, zinc and other metals, depending on the specifications of the alloy to be melted are also added in varying quantities.

The fuel is stoked and charged at short intervals to keep the fire hot, while added metal is charged into the crucible.

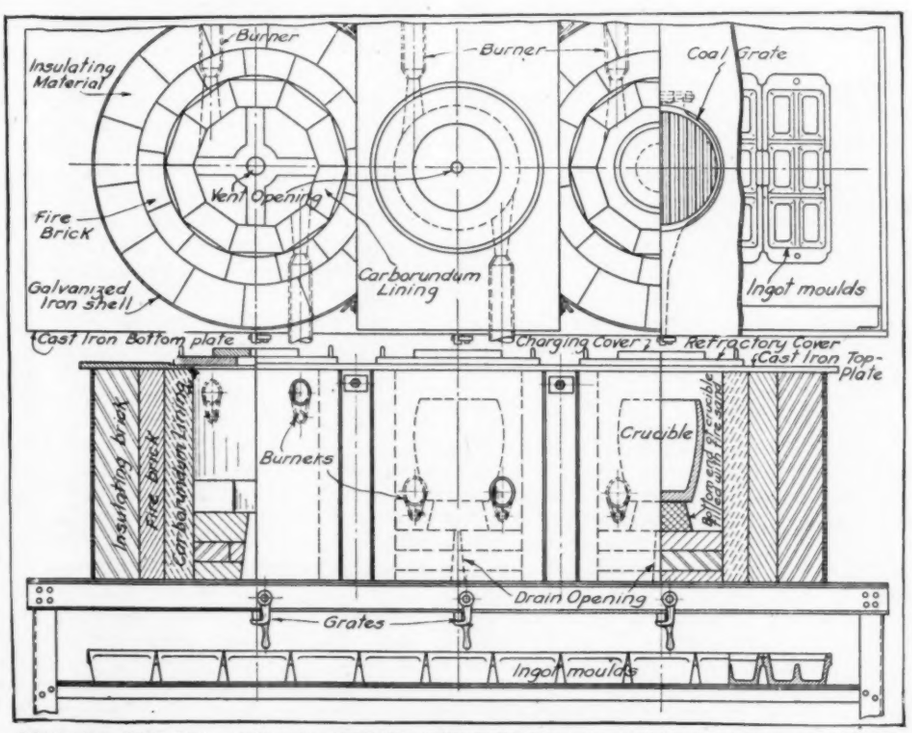


DIAGRAM SHOWING GENERAL DETAIL CONSTRUCTION OF BRASS MELTING FURNACES EQUIPPED WITH GAS BURNERS

When the metal begins to melt some charcoal is thrown into the crucible to help prevent oxidization of the molten metal. If the draft conditions are favorable and the fuel is of good quality, a No. 50 crucible, having a capacity of 150 lbs., will be ready for pouring about 9.30 a. m., three hours after the furnace was first started.

The fuel is stoked down on either side of the crucible to allow the tongs to be placed around the crucible which is then lifted out and placed in a pair of shanks. The shanks consist of a circular ring having long handles provided for use in carrying the crucible about the operating floor.

While in the shanks, the slag and charcoal are skimmed off and the crucible is poured off into the waiting moulds.

Operation Seldom Carried Through Without a Hitch

If the operations were conducted as smoothly as above described the foundrymen would be relieved of many worries. In fact, it is very rare to have the same conditions occur twice for the same kind and amount of metal melted in the same furnaces. The draft conditions cannot be depended upon, nor is the heat value of the coke or coal constant. Because of these facts, the time per heat is neither definite nor controlable.

Also due to stoking the fuel around the crucible, the pot may crack and as a result the melted metal runs into the fuel and down into the ash pit. If this should occur, less than half of the metal is reclaimable, even at a considerable expense.

In removing the pot from the furnace clinkers frequently adhere to the sides and bottom of the crucible, making it difficult to remove the crucible, besides causing spattering and cracking and oftentimes turned over pots.

Very often, too, the fuel at the bottom of the furnace will be burned out completely. It is then necessary to raise the crucible and charge a fresh supply of fuel below it. Again, the fuel binds at the bilge of the crucible, in which case the weight of the metal will sometimes cause the bottom of the pot to drop out. Likewise pieces of fuel are often poured into the moulds, resulting in defective castings.

Excess air is always present, resulting not only in high percentage of shrinkage, but it also soaks into the molten metal and causes blow-holes in the castings. Another serious effect that the excess air has is the shortening of the crucible life, due to the burning out of the carbon in the crucible structure.

Oil Not Adaptable as Fuel for Brass Melting

Various foundrymen have considered using oil as fuel for their furnaces. A thorough investigation brought out the fact that this fuel is undesirable in a brass foundry, not only because of the high first cost of installation, but because of the many objectionable conditions obtained in the operation of a furnace using this fuel.

When burning oil fuel an excess amount of air must be used to increase the rate of melting. This is objectionable as pointed out before, because of its damaging effect on both the crucible and the castings. In order to get perfect and uniform combustion with this fuel it is necessary that the heat value be constant; second, that the rate of flow be kept uniform, and, third, that the proper amount of air be supplied at a uniform rate and pressure. To obtain these ideal conditions is almost impossible.

The oil very often clogs the transmission lines, thus giving a non-uniform flow.

The heat value varies, so that if the air supply could be controlled, the proportion of air to oil would not be uniform, thus resulting in incomplete combustion and an excess of air.

Another serious objection to oil fuel is its effect on new crucibles when the furnace is lighted. With an excess of oil entering the furnace, there being insufficient air for perfect combustion, the surplus moist oil gas will be forced against the crucible walls and lining, producing what are known as "alligator cracks."

Layers will peel from the crucible and furnace lining to a depth corresponding to the depth that the oil has penetrated. Wherever oil furnaces are used, uncleanliness and disagreeable fumes exist, and the use of this fuel does not add to the health of the employees.

Gas Ideally Adapted

Because of the high first cost of the apparatus and the installation of the oil equipment, there is a correspondingly high depreciation and maintenance cost. Oil fuel is not always available, due to embargoes and the demand for this fuel by the Government. These conditions result in increased prices.

The fire hazard is increased considerably where oil fuel is used. Some insurance companies will not accept insurance on property where oil is used, while others charge an excessive rate to cover the risk. There is always some capital invested in fuel storage which might be used to better advantage in other branches of the business.

It is evident that in order to obtain the best operating conditions in a brass foundry, a fuel should be used which can be depended upon for availability of supply, uniform heat value and to have no evil effects on castings.

Gas is the only known fuel that will comply with these specifications.

The Rochester company has designed and installed several gas-fired brass melting furnaces at one of the largest brass foundries in the city. That gas furnaces are more economical than any other type of furnace is obvious from the fact that the entire equipment of this foundry is being converted to gas. The construction and burner arrangement of these gas-fired pit furnaces are shown in Fig. 1.

Two Types of Furnaces Installed

Two types of furnaces were installed. The first or down-draft type consists of a refractory lining backed up by insulating material, having located at its bottom a pedestal made up of quadrant fire brick with an opening in its center for ventilation. The burners are located tangentially and are pitched slightly downward so that the resulting flame will be well directed and its heat evenly distributed.

The second type, or natural draft furnace, consists of the same refractory lining and insulating material, but has its vent opening in the top cover instead of in the bottom of the furnace. A pedestal made of an old crucible, filled with fire sand and kaolin cement, is located at the bottom of the furnace for the crucible to rest on. The burners are arranged quite similar to that of the down-draft furnace, except that they are nearer the bottom of the furnace. In both types of furnaces

arrangements are made so that in case the crucible should crack or break, the metal can pour down into a waiting crucible located underneath the furnace. After a series of tests, the down draft was found to be the more economical.

These furnaces were so designed that they could easily be converted to coal-fired furnaces if the consumer so desired, but due to the good results obtained with gas, this feature was not taken advantage of.

Operation Simple

The operation of a gas-fired pit furnace is very simple indeed. About 7.30 a. m. (instead of 6.30 with coal) the furnaces are started, and the heat is immediately available. The crucibles are charged as soon as they become heated to an orange color. No attention is paid to them except for charging the metal, and at the end of a definite time the crucibles are ready for pouring.

Due to the time required to heat the furnace linings and crucible, the first heat for a No. 50 crucible requires from one to one and a half hours' time. Thereafter, heats may be run off at intervals of less than an hour.

When using a gas-fired furnace, either a reducing or oxidizing atmosphere may be obtained. By a *reducing atmosphere* is meant one in which complete combustion does not take place; that is, it lacks some air to give complete combustion. An oxidizing atmosphere, on the other hand, contains an excess of air. It is desirable, however, not to have any excess oxygen in the brass melting furnace, in order that the shrinkage may be kept at a minimum. A mixture is therefore arranged in which no excess oxygen is present, and when once set, it is kept constant.

Because of this absolute control of the mixture, the oxidization of the metal is reduced to a minimum while the life of the crucible is increased.

The life of a crucible is increased because no stoking of the fuel is required in a gas-fired furnace, nor do clinkers adhere to the outside of the crucible to cause accidents by spattering or tipping.

Another ideal condition that exists with a gas-fired furnace is the fact that if a pot should crack, provision is made for the molten metal to drain into ingot moulds, in which case all the metal lost from the crucible is reclaimable.

Two to Three Times as Many Heats Obtainable By Use of Gas

With a constant rate of gas consumption, a definite temperature may be obtained at the end of a definite interval, thus enabling a proper regulation to be made, and in turn a standard production.

With the gas furnace equipment, the moulding floor is no longer dependent on the furnace. On the contrary, the furnaces are dependent on the capacity of the moulding floor. This is due to the fact that from two to three times as many heats are available in the gas furnace as compared to a coal or coke-fired furnace of to-day.

The metal poured from the gas-fired furnace is free from foreign particles and self-generated gases, giving a clean and uniform casting free from blow holes.

Gas fuel is always and immediately available at the furnace. The heat value of the fuel is uniform. As soon as the pot is removed, the gas is shut off and the cost of fuel ceases.

Fuel-Cost Differences Balanced

As for the cost per hundred pounds melted, a statement by one of the local foundry men is self-explanatory: "I can well afford to pay two and three times as much for gas as I did for coal and still save money on the net cost per hundred pounds of metal melted, because the saving in shrinkage will more than offset the increase in fuel cost."

One of the most important items to be considered in the pit type of furnace is the life of the crucible. Due to the present industrial conditions and the shutting off of the foreign supply, the price of the crucible to-day is from five to eight times what it was before the war.

It is very essential, then, that proper care should be taken in heating and handling the crucibles.

The demand for crucibles in this country is so great that the makers do not take the time to properly dry out the crucibles, and very often they are shipped "green." The crucibles when received should be stored on a shelf located in a dry atmosphere, and at room temperature, for ten to twelve days.

Before placing them in the furnace, they should be gradually "heated" from room temperature to about 250 deg., taking several hours for the drying process. If the crucible is "heated" too quickly, the moisture, which is always present in a new crucible, will rapidly flash into steam, causing pieces to chip out of the crucible in the form of scale.

Handling Crucible

In handling the crucible when hot, it is important to have tongs so designed that they will grip it properly, otherwise the weight of the metal will strain it to such an extent as to crack it or cause the bottom to fall out. Tongs known as the "grab" type are to be preferred.

In lifting the crucible from the gas furnace, care should be taken that it does not strike against the linings. This condition is not only detrimental to the crucible itself, but may chip the lining of the furnace.

It is advisable to prolong the life of the crucible materially by coating it with a paint made of carborundum fire sand, mixed with water glass or some similar wash.

A crucible should not be subjected to rapid changes in temperature, because such changes in temperature result in excessive internal strains and cracking. It is desirable, therefore, that the crucible should be poured and returned to the furnaces as quickly as possible to prevent the temperature of the crucible from reaching too low a point.

In a gas-fired furnace, the number of heats per day is from two to three times that of a coal furnace, and the crucible, therefore, is not cooled to nearly room temperature as many times as in the coal furnace.

Due to the design of the gas-fired furnace, considerable heat is retained overnight, thus preventing the crucible from absorbing moisture. The life of the crucible is therefore prolonged and the furnace may be started up with full speed.

Increasing Life of Furnace Lining

The life of the furnace lining may be greatly increased if before lighting up a freshly-lined furnace, a wood or charcoal fire is burned in the furnace. The linings are not only dried thoroughly by this process, but a hard glazed surface is formed which adds to the life of the lining.

A wash, made up of a mixture of 80 per cent ganister, and 20 per cent fire clay, applied two or three times a week during the operation of the furnace will also lengthen the life of the linings considerably. If cracks appear in the lining they should be repaired with a fire sand mixture before lighting the furnace the next day.

The Tilting Gas Furnace

Another type of gas furnace, one that requires no refractory crucibles and is very efficient for melting "red metal" (a composition being not less than 80 per cent copper) is what is known as a tilting furnace.

Several standard makes of this type of furnace are now on the market. The principal upon which the tilting furnace operates is similar to that of a reverberatory type of furnace; that is, the flame comes in contact with the furnace lining and the radiant heat is reflected directly on to the metal.

The furnace is tilted back and forth during a heat, in order that the heat may be distributed effectively. Metal is piled up on top of the furnace to be preheated before it is dropped into the furnace, so that more of the heat which would otherwise be wasted is used up.

A heat of 400 lb. of red brass may be had in less than one hour in this type of furnace, and the consumption is less than 300 cu. ft. per 100 lb. of brass.

If red brass is melted, the shrinkage is comparatively low, but the tilting furnace is not economical for melting yellow brass because the percentage of shrinkage is too high.

Judging the Character of the Man at the Top by the Actions of the Office Boy

John G. Jones Points Out Paramount Importance of Proper Sales Methods—The Subordinate the Reflection of the Head of the Organization

Editor's Note: George P. Smith, Jr., manager of the Old Colony Gas Company, of East Braintree, Mass., called the attention of the American Gas Engineering Journal *to the following article by John G. Jones, sales manager of the Alexander Hamilton Institute, republished from the September "Bulletin" of that Institute, with the comment that the article should be read by every gas man. Because the* Journal *agrees with Mr. Smith it is presented herewith:*

The manner in which a sales person or any other employee in a business meets a customer, as well as the quality of the service rendered, are always a reflection of the man at the top. Show me a business where even the office boys who come in from the outside are received courteously and handled promptly and I will show you a business headed by a man who believes in courtesy. Show me a business where sales people are indifferent and employees insolent and I'll show you a business headed by a man whose own attitude is indifferent and insolent. A business where there are unnecessary delays means a business headed by a man who is actuated by no sincere desire to serve. An organization whose people do not know their goods is an organization headed by a man with no strong desire to develop efficient people about him.

A recent article in the *Journal of Commerce* states that an investigation made to ascertain why customers change from one store to another revealed the fact that out of 198 people interviewed, as tabulated below, only one gave poor quality of goods as a reason for dissatisfaction. The 197 other complaints had to do with matters of organization, management, salesmanship, business policies and service.

Reasons for Discontinuing Patronage

Indifference of sales people	47
Attempts at substitution	24
Errors	18
Tricky methods	18
Slow deliveries	17
Over insistence of sales people	16
Insolence of employees	14
Unnecessary delays in service	13
Tactless business policies	11
Bad arrangement of store	9
Ignorance of sales people concerning goods	6
Refusal to exchange purchases	4
Poor quality of goods	1
Total	198

The investigation mentioned above had to do with selling at retail, but the principle applies in every business no matter what its character. The head of an organization having ideals of courtesy, promptness and sincere service must gather about him not only men who are able, but men whose ideas can be brought into harmony with his own, men capable of being inspired by him and consequently men who can carry out his policies, and these men in turn must carry this influence down the line. In the best of organizations there will be an occasional slip, on rare occasions a show of indifference and even discourtesy, but if the spirit is right, the offender's co-workers will resent these defections and correct them.

No one in a business from the general manager down to the girl at the telephone can avoid leaving an impress upon the business. Their influence will either be positive and make for progress or it will be negative, acting as a drag upon the wheels. Is your influence in your business positive or negative?

Publications

Utilization of Pyrite Occurring in Illinois Bituminous Coal

Circular 5, Engineering Experiment Station of the University of Illinois. Author, E. A. Holbrook. Stiff paper bound; 42 pages; illustrated. Price, twenty cents. Obtainable from the Engineering Experiment Station, University of Illinois, Urbana.

The mineral pyrite occurs in nearly all Illinois coals as characteristic brassy yellow colored streaks, thin plates, lenses, nodules, bands or balls of all sizes, sometimes up to 10 or 12 in. in thickness. In the ordinary course of mining pyrite is rejected as a deleterious impurity. Its presence in the coal in any considerable quantity not only affects the appearance and consequently the salability of the fuel, but when burned, pyrite promotes the formation of clinkers. Its heating value is small, and the sulphur dioxide gas formed from its combustion, in combination with water vapor, forms an acid which tends to corrode boiler flues and stacks.

Pyrite when pure contains more than 50 per cent of sulphur, and when the nearly pure mineral is properly burned or roasted, the sulphur dioxide gas resulting

forms the basis for the manufacture of sulphuric acid. In normal times the commercial supply of sulphuric acid is obtained as a by-product of the roasting and refining of zinc, lead or copper ores which contain sulphur. The prohibition against undue atmosphere pollution in the neighborhood of zinc, lead or copper smelters due to the formation of sulphur dioxide and its discharge into the atmosphere, has often made its recovery a matter of necessity not regulated entirely by market demands for the resulting sulphuric acid.

In normal times in the United States, the market for pyrite has been irregular and has been limited to small areas near the points of production and utilization owing to the fact that high freight rates have operated against extensive distribution. Moreover Spanish pyrite has normally been imported easily and cheaply to the extent of a million tons or more per year, usually in vessels which would otherwise return to America in ballast. In normal times also considerable crude sulphur has been available for the manufacture of sulphuric acid. All of these factors have affected the general market to such an extent that the commercial demand for pyrite which might be recovered during the mining and preparation of Illinois coal has been uncertain. Moreover, since the pyrite must be freed of adhering coal and refuse before shipment, the extra cost of this process has been an added disadvantage in the normal close competitive market.

In 1915, according to the report of the United States Geological Survey, 964,634 long tons of pyrite were imported while the domestic production was only 394,124 long tons, or about 29 per cent of the consumption. Of the domestic pyrite, 14,849 long tons are credited to Illinois, all of which, except a small amount from the northwestern part of the state, came as a by-product of the coal industry. Of this, possibly 12,000 tons came from one plant in the Danville district. In general then, little attention has been paid to the recovery of pyrite by the coal producers of the state.

Since the beginning of the European war new conditions have arisen. The supply of Spanish pyrite has been largely cut off, and under present market conditions (July, 1917) a clean pyrite product is worth from three to four times as much per ton as the coal with which it occurs. Sulphuric acid is used extensively in the manufacture of explosives as well as in the preparation of fertilizers, and the great increase in the demand for these products coupled with the reduction of the supply has advanced the price to a point which seems to present new possibilities in connection with the recovery of pyrite from Illinois coals. Some coals contain so large an amount of pyrite that its utilization under present conditions seems commercially practicable, and at certain mines the refuse piles contain large quantities accumulated from the picking belt at the tipple, from hand picking in the railroad cars, or from the coal washeries. It even seems probable that high sulphur coals could be crushed and washed to advantage, but with a view of saving the contained pyrite rather than of obtaining a cleaner coal. Although at present there is an almost unlimited demand for pyrite, it should be remembered that market conditions may change and, with the amount of pyrite available at most mines, large and expensive plants are probably not warranted. It becomes necessary, therefore, to design and to install small plants which will free most of the pyrite from the coal adhering to it and will otherwise treat it to make it acceptable as a commercial produce. Through W. G. Hartshorne of Danville, the Mining Engineering Department of the University of Illinois has been able to secure several lots, each of about one ton, of crude hand-picked pyrite mixed with its adhering coal. Experimental work in the laboratories has been conducted with a view of obtaining pyrite clean enough for the market and also coal as a by-product, clean enough to pass as ordinary tipple screenings. The experiments were performed as regular class ore-dressing experiments by senior students in the department of Mining Engineering under the direction of the author, and approved compilations from these results have been used to supply part of the data outlined in this work. The possible commercial use at the present time of these results by the mining industry was suggested by F. W. DeWolf, Director of the Illinois State Geological Survey.

The process outlined in the circular has not been developed with the ordinary small laboratory or hand apparatus. The mining laboratory of the University of Illinois is equipped with machines which are of commercial character and which differ from commercial machines only in being in most cases of half their dimensions. It is thought, therefore, that the results of these experiments are applicable directly to such a plant.

Theoretical Depreciation

Paper-bound volume; 155 pages illustrated. Prepared by James E. Allison, of James E. Allison & Co., valuation engineers, of St. Louis, Mo., for the Consolidated Gas Company of New York, for the consideration of the Public Service Commission for the First District, New York State, and approved by the Astoria Light, Heat & Power Company, the Brush Electric Illumination Company, the Central Union Gas Company, the Consolidated Gas Company of New York, the East River Gas Company of Long Island City, the Amsterdam Gas Company, the New York & Queens Gas Company, the New York & Queens Electric Light & Power Company, the New York Edison Company, the New York Mutual Gas Light Company, the Northern Union Gas Company, the Standard Gas Light Company of the City of New York, the United Electric Light & Power Company, the Westchester Lighting Company, the Bronx Gas & Electric Company, the Brooklyn Union Gas Company, the Edison Electric Illuminating Company of Brooklyn, the Kings County Lighting Company, the Flatbush Gas Company, the Jamaica Gas Light Company, the Newton Gas Company, the Richmond Hill & Queens County Gas Light Company, the Woodhaven Gas Light Company, the Queens Borough Gas & Electric Company, the Richmond Light & Railroad Company, and the New York & Richmond Gas Company.

The work is a discussion on the subject indicated in the title, and includes an analysis of a paper on "Accounting for Depreciation" by Dr. Weber, statistician for the Public Service Commission for the First District, New York State, with whose viewpoint it strongly disagrees.

"When replacement is fully provided for," the discussion asserts, "depreciation is counteracted, and does not exist, and so-called depreciation (actually replacement) charges should be made in rates with the sole purpose of counteracting or preventing depreciation by replacement."

This practically is the keynote of the discussion, which is, in effect, an energetic refutation of the theories of what the author styles "the depreciationists."

The viewpoint of the author, and we assume of the companies which have approved the work, is defined concisely and convincingly. There is a considerable amount of fudamental common sense revealed in the reasoning advanced, a quality that is by no means too common in works on valuation and rate making. The work should be in every gas company's files.

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CONTENTS

PREHEATING EFFECT SECURED BY COMBINING FUNCTIONS OF HOPPER, INTO WHICH PIECES TO BE TREATED ARE CHARGED, WITH FLUE IN GAS-FIRED FURNACE FOR SMALL STEEL FORGINGS. BY A. J. DE GHEQUIER..... 277

OIL-BURNING RANGES DEMOLISHED AND BATTERY OF FIFTEEN GAS RANGES INSTALLED IN HOTEL KITCHEN IN TWO NIGHTS WITHOUT INTERFERING WITH SERVICE..... 279

EVEN WHERE FUEL COST FOR GAS IS TWO AND THREE TIMES THAT FOR COAL FORMER IS MOST ECONOMICAL FOR BRASS MELTING..... 281

JUDGING THE CHARACTER OF THE MAN AT THE TOP BY THE ACTIONS OF THE OFFICE BOY..... 284

PUBLICATIONS..... 284

Utilization of Pyrite Occurring in Illinois Bituminous Coal
Theoretical Depreciation

EDITORIALS..... 286

PRESSROOM COSTS CUT AT PRINTING PLANT USING GAS AS A DE-MAGNETIZER AND INK DRYER. BY S. E. WARDELL..... 288

NEWS OF THE GAS INDUSTRY..... 289

PERSONAL NOTES..... 296

SOCIETIES AND ASSOCIATIONS..... 296

CONSTRUCTION NOTES..... 296

FINANCIAL NOTES WILL BE FOUND ON PAGE 16 OF THE ADVERTISING SECTION.

Getting Started in Time on Gas Lighting Week

What might aptly be styled the annual carnival of gas lighting is close at hand. Despite the fact that the opportunities presented for success in lighting campaigns are greater than ever before, we have not heard so much of "Gas Lighting Week" this year than we did about this time last year.

Does this mean that the industry, in the midst of the many problems and perplexities that have confronted it, has temporarily forgotten the importance of this occasion? It is to be hoped not. Various companies have made late starts in the past and have been adversely affected later. "Gas Lighting Week" is set at an auspicious time. It is the logical moment at which to start on the season's lighting campaigning.

Many factors are combining to the advantage of gas lighting. We must keep on selling so that when they come to fruition we will not have to go back over neglected ground preparatory to the great surge that will then be possible. We should be already warmed up, to borrow the phraseology of the athletes, for the great push that will convince all who doubt the future of gas lighting.

Lack of maintenance of the Toronto type has been one of the big factors against gas lighting. This handicap is well on the way to oblivion. There has been a growing realization upon the part of the companies of the advantages and necessity of a type of maintenance that will take away from the consumer every responsibility for direct participation. The day of the general adoption of this principle of maintenance is not far distant.

The candle-power standard is fading in prevalence in favor of the heat-unit standard, and with it will go the open flame burner, useful in its time, but at the present one of the most harmful influences against the repute of gas lighting.

Chicago already has the heat-unit standard. Hearings are being held by the Public Service Commission, First District—which includes the city of New York—New York State. The likelihood is that these hearings will result in the adoption of the heat-unit standard. If they do not the ruling will be in direct conflict with the testimony of the commission's chief gas engineer. Also no one who has attended the hearings to date can fail to be convinced from the attitude of the various commissioners that each of them understands fully the distinction between candle power and the thermal content, and the relative value of each. This being the case there can be no other conclusion.

With the adoption of the heat-unit standard common in our two great cities, the trend in its favor throughout the country will be irresistible.

Let us, therefore, prepare for the era of gas lighting that is to come. Let us make this season just as much more successful than last season as the oppor-

tunities now are greater than they were then. Above all let us safeguard ourselves against the possibility of having to go back, in the midst of a great boom, to pick up loose ends.

Gas Lights on the Great Highway Systems

There have been brought near to completion throughout the country during recent years various great highway systems, linking border to border and coast to coast. Among them are numbered the Lincoln Highway, the Dixie Highway, etc.

These systems are traveled by thousands of motorists. Would it not be to the advantage of gas lighting to concentrate on them for street lighting business? Through many stretches such a course would not be practical, but in innumerable cases it would.

Once installed, the touring motorist will be quick to distinguish the quality of light, and, being of the class that generally demands the best, will seek such lights for his home district.

Many gas company managements view street lighting much in this manner, and believe its strategic value to the gas industry lies in its effect as a publicity agent. Ornamental gas street lamps are the sign-boards for gas lighting. Where they are found, one also finds much domestic and commercial lighting. This being true, the effect of gas lamps on the great highways would be national publicity for gas lighting.

Factory Lighting Installations

There are various reasons why gas lighting should be easy to sell to factories at the present time. The period of shorter daylight illumination is at hand. Factories for the most part are running at full blast and improvements can be paid for out of profits. The grade of operatives is relatively low.

By no means or methods can the mere "handy man" working under equal conditions be as efficient as the skilled mechanic. But in the past factories have not always worked the skilled mechanic under the most advantageous conditions. Improper lighting alone has seriously impaired the efficiency and diminished the output of the highly-paid and highly-skilled worker. It is true that in notable instances attention was given to scientific principles of illumination in factories even before the stress of war conditions made a speeding up in production and the obtaining of the maximum output from every man imperative.

But there are factories innumerable where the advantages of proper lighting conditions have not even yet been effectually "sold" to the managements. These managements are very much interested in the question of increased production and maximum output from every worker. Show them a reasonable means of approaching to an appreciable degree nearer to this ideal and they are sold. Gas lighting, properly applied, is a practical and economical means to this end.

Through it the output of the skilled mechanic can be brought nearer its maximum. Also the semi-skilled operative whom necessity has promoted to tasks ordinarily requiring skilled men, working under bettered conditions, may well attain an efficiency that approaches that hitherto obtained from the skilled man working under adverse conditions.

No salesman harbors a doubt that it is easier to sell to a man in prosperity than it is to the same man in a period of business depression. Most factories are enjoying a period of excellent profits, despite labor conditions and high material prices. They are excellent buying prospects.

The seller of gas lighting to factories is presented with a unique opportunity to combine good business with national service. The man-shortage problem is serious. If it could be alleviated by multiplying individual efficiencies to the extent of making a thousand men equal, to all practical purposes, as measured by results, to a thousand and fifty men the augmentation to the Nation's potential resources would stagger the imagination.

Lighting the Display Room with Lamps of the Type the Consumer will Use

The display rooms of some gas companies like the terminal stations of great railroads have become exceedingly pretentious affairs. In arranging them the gas man who is a lighting enthusiast is beset with an almost irresistible temptation to show what *can* be done with gas lighting. The result quite often is that the lamps by which the rooms are lighted are far and away beyond anything the usual visitor would be interested in.

Our news columns tell us of companies which have made it a point to light their display rooms with a type of lamp such as a medium-sized store, barber shop, restaurant, etc., can use. The result in installations secured have justified the experiment. The suggestion is well worth consideration by gas company managements.

The Handicap of a Well-Known Name

Fortunate indeed is the ambitious young man who comes into the gas industry without the handicap of the reputation of a distinguished father. It is true that the man who enters the industry's ranks with the advantage of acquaintanceships finds it easier to locate himself at the outset. It is difficult, indeed, to so adjust our viewpoints that we do not consider that one who bears a name high in the annals of the industry must of necessity be blessed with talents far beyond the ordinary. But there the difficulties begin. Because we have un-

consciously set such high goals for him, even the most talented falls short of expectation.

We have particularly in mind one man who has attained remarkable achievements in proportion to the period he has served in the industry's ranks. But we seldom hear of him. His attainments are eclipsed by the reputation of his father.

It is possible that should he live to the age his father has reached his accomplishments will rival and perhaps surpass those of his predecessor who has stamped the family name in imperishable letters in the annals of the industry. Yet a hundred years from now when men look back over the list of the industry's big figures, its builders, that his name will not appear.

Recent years have witnessed a change of the standards by which we measure success just as in the standards by which we measure gas. The accumulation of a vast fortune no longer is the acme of human success. The dominating type to-day does not consider itself successful unless the public concedes that it has done something, not for its own welfare and comfort alone, but for the welfare and comfort of society as a whole. We are sure that this is the standard by which this man measures success.

If he gets his due deserts he and his family will never lack the comforts and conveniences that money can buy. Yet how galling must it be to him, with his real record of achievement behind him and probably a brilliant future ahead—such, indeed, that had he come into the industry unknown he would have generally been hailed a genius—to realize that he is known in the industry principally because he is his father's son.

Pressroom Costs Cut at Printing Plant Using Gas as De-Magnetizer and Ink Dryer

Destroys Static Electricity, Dries Ink, Prevents Offset, Eliminates Slip-Sheeting and Allows Presses to Run at Full Speed

By S. E. WARDELL

Gas has been the means of increasing the output of each of twenty-four Miehle presses at the Federal Printing Company, 239 West Thirty-ninth Street, New York, which handle such publications as the *Electrical World, Metallurgical and Chemical Engineering, Iron Age*, etc., from 700-750 impressions per hour to 1,000-1,100 per hour. Besides, it has saved the time of one boy on each press for inserting slip-sheets, and the time of two boys on separating the pile of slip-sheets from the printed sheets after the run is completed, according to statements made in an interview with Charles Heale, superintendent of the plant.

This has been accomplished by means of a Craig De-Magnetizer and Ink Dryer machine attached to either the sheet delivery or the fly delivery of the presses. It consists of a nickled piece of piping with the regular burner holes and air regulator which is found on any gas range. A pilot light is incorporated, as well as a mechanical contrivance which is connected with the pressman's tripping pedal, and so automatically ignites and shuts off the gas whenever the press starts and stops, or when no impression is made.

It is attached at the extreme end of the delivery and moves back and forth with the delivery. It can readily be seen that the sheets of paper develop considerable static electricity through the friction, as they are lifted one by one and also in going around the cylinders and through the press. If the sheet is not de-magnetized the wet ink makes an impression on the back of the next sheet, which is termed in the printing language "offset." On machines equipped with this de-magnetizer the sheet passes directly under the flame, which deprives it of the static electricity it contains and at the same time dries the ink sufficiently to do away with an offsetting and eliminates the necessity of slip-sheeting.

Slip-sheeting has been the profit-eating worm with which printers have had to contend for years, and anyone in that trade is ever ready to listen to any proposition which tends toward the elimination of it.

For the benefit of the gas man, who may or may not be familiar with the term slip-sheeting, an explanation may be advisable. Slip-sheeting is the inserting between each printed sheet, as it is delivered from the press, another unprinted sheet of approximately the same size. This is necessary on work which demands particular care, and especially when heavy masses of ink are necessary. This demands the time of an extra hand to insert these sheets. After the pile of printed matter has dried sufficiently two people are required to separate the slip-sheets from the printed matter.

As can easily be seen, this process is expensive, as it requires extra floor space, tables, an extra outlay for slip-sheets and help, besides the large percentage of printed sheets which are naturally spoiled in the extra handling. Concerns in New York, Philadelphia, Chicago and St. Louis use the following basis in estimating slip-sheeted work:

Sheet 22 x 32 in. or smaller	$0.90 per hour
Sheet 25 x 38 in	1.00 per hour
Sheet 32 x 44 in	1.20 per hour
Sheet 38 x 50 in	1.35 per hour
Sheet larger than 38 x 50 in	1.50 per hour

These figures cover slip-sheeting only and are added to the regular press-work estimate. The price per hour is based on the run of the press and includes putting the sheets in and taking them out, and 10 per cent of the cost of the sheets.

When the industrial fuel salesman of any gas company can show his print-shop prospects an absolute elimination of the above expense, he is pretty sure of having found a formidable opening wedge into the equipping of the entire plant with gas, which might lead to sales of gas-fired steam boilers and furnaces for use in stereotyping, linotyping atmospheric furnaces, matrix scorching ovens, casting boxes, electrotyping furnaces or any of the other numerous gas applications in the print-shop.

The Craig De-Magnetizer and Ink Dryer Corporation, which made the installation at the Federal plant, and holds the patent rights, has had an unusual degree of success since the opening of its New York headquarters at 337 West Thirty-eighth Street about four months ago. Over 150 installations have been made in this time in New York City alone.

News of the Gas Industry

Merger of Carbide and Chemical Companies

It is announced at Chicago that the details of the reorganization of the Union Carbide Company and its acquisition of the National Carbon and other carbide and chemical companies will be made public probably before Oct. 1. The reorganization, negotiations for which have been in progress several months, will provide for the formation of a new company to be known as the Union Carbide and Carbon Company.

The new corporation will exchange two and a half shares of its stock for each share of Carbide. The basis of the Carbon exchange has not yet been determined. The new company, it is understood, will begin by paying 4 per cent dividends which will compare with the regular 8 per cent paid on Carbide. Controlling interests hope to make the dividend rate 6 per cent by next year, it is said.

Chicago Canning Campaigns Reach Their Height

The numerous canning campaigns conducted at Chicago by the Peoples Gas Light & Coke Company, the federal food administration and other agencies reached the height of their success last week when the half million of school children by order of the board of education observed an official "Canning week."

Bulletins on canning were distributed to all the public and private school teachers and the board gave Superintendent of Schools John D. Shoop permission to supply the various schools with cans. Vegetables from all the school gardens were then brought to the domestic science departments and the girls were taught the modern methods of canning by the use of gas.

Knoxville, Tenn., Company Petitions for Increase

A petition to permit an increase in the price of gas, now $1 per 1,000 cubic feet, has been presented to the city commission by the Knoxville (Tenn.) Gas Company. The present price was fixed in the franchise contract fourteen years ago, and was to prevail for fifty years.

Heat Unit Standard for New York City Being Discussed by Public Service Commission

Cross-Examination and Testimony of William F. Hine, Chief Engineer of the Commission, and R. S. McBride, Chemist of the Bureau of Standards, Washington, D. C., Entered Into

The first hearing before the Public Service Commission, First District, of New York, on the question of the change in the measurement of gas from a 22 candle-power to a heat unit, was held Thursday, September 20, in the Equitable Building, New York City. Before completion, this case promises to be as highly interesting as the Eighty-Cent Gas Case ten years ago.

The discussion started promptly at 2:30, with the full commission present, and Chairman Oscar Straus presiding. Almost before the case was under way, H. W. Berg, a member of the United Real Estate Owners' Association, raised a protest as to the publicity which had been given out regarding the meeting.

After an explanation of the advertising which had been done, and an assurance that he would be given an opportunity to speak before a decision was rendered, the case proceeded.

While the gas companies of New York City favor the change in the standard of measurement, claiming that it would be beneficial to their consumers, they contend that there can be no resultant reduction in the price of gas, as has been suggested by the Public Service Commission.

John H. Garver, counsel for the Consolidated Gas Company, maintained that with the present conditions the rate question should not enter into the consideration until after the standard has been set and tried out.

William F. Hine, chief engineer of the Public Service Commission, was first to take the stand and render testimony. He was cross-examined by William L. Ransom, counsel for the Public Service Commission. In his opinion the heat standard unit is the best method known of measuring gas, and of course, he favors the mantle light which, as he states, gives practically five times the amount of illumination for the same quantity of gas burned in an open flame burner.

New York Public Utilities to Push Next War Loan

The public utility corporations have organized a special committee, headed by George B. Cortelyou, president of the Consolidated Gas Company of New York, to push along its work of disposing of the new issue of bonds to be put on sale in less than a week. The Consolidated Gas Company has already started its work for the Government. Dividend checks which have been sent out by the company contain folders calling attention to the loan. Thousands of consumers of gas will receive similar folders with their monthly gas bills.

Besides the Consolidated other organizations working under Mr. Cortelyou will be the National Electric Light Association, the American Gas Institute, the Natural Gas Association, the Interborough Rapid Transit Company, the Brooklyn Rapid Transit Company and the Third Avenue Railroad Company.

Palo Alto, Cal., Company Protests Against Rate Increase

The Palo Alto Gas Company has filed with the railroad commission a complaint against the Pacific Gas & Electric Company asking the commission to fix a just rate for gas furnished by the Pacific company to the complainant. The complainant says that the Palo Alto company buys gas from the Pacific company to serve consumers in Palo Alto, Cal., and the latter company now threatens to charge 60 cents a thousand cubic feet.

The hearing was continued Tuesday morning, September 25, and Mr. Hine again took the stand and was cross-examined by John H. Garver, counsel for the Consolidated Company.

A tabulated list of all the results obtained at thirteen testing stations, at which the candle-power and B.t.u. of the gas served in New York City had been tested since January 1 was presented as Exhibit 1.

R. S. McBride, chemist of the Bureau of Standards, Washington, D. C., in charge of gas engineering and investigation, took the stand and was questioned by the attorney for the commission. He believes, in general, that heating value is preferable to candle-power value in gas, and is of the opinion that unless it is possible to reduce the price in proportion to the service now being rendered he can see no reason why a change should be made.

Colonel Dykman brought out some facts, as he stated, from the standpoint of the stockholders in the gas companies.

The cross-examination of Mr. Hine was then continued and W. R. Addicks, vice-president of the Consolidated Gas Company, in questioning the witness, told some of the difficulties encountered by the gas companies in the matter of increased manufacturing costs.

Robert A. Carter, vice-president and secretary of the Consolidated Gas Company of New York, in discussing the case, at another time made this statement: "Every gas company in the State of New York, with the exception of the gas companies doing business in New York City, is supplying gas under the calorific standard, as ordered by the Public Service Commission for the up-State, or Second District. The British thermal unit was long since adopted abroad, and is operated throughout the country. The candle-power measurement of gas is practically obsolete.

"If, during the ensuing years, the Consolidated Gas Company were to produce and deliver to its customers gas having a calorific content of 585 B.t.u., the deficiency in the amount collected from its customers below the actual cost of gas, would amount to $1,892,335," Mr. Carter said. "To have collected the actual cost of gas, including 6 per cent upon its investment, based on the Eighty-cent Gas Case, during the nominal year ending July 31, 1917, assuming a standard of 585 B.t.u.'s to have been in effect, it is estimated that the company would have been obliged to charge 82.8 cents per thousand cubic feet of gas sold to the public; and, to collect the actual cost of gas during the ensuing year, assuming the prices of labor and materials to remain unchanged, and that gas having a calorific content of 585 B.t.u.'s were delivered, instead of gas of 22 candle-power, it is estimated that it would be necessary for the company to charge 91.4 cents per thousand cubic feet of gas sold to the public.

"It is estimated," Mr. Carter said, "that the actual cost of gas for the ensuing year, including 6 per cent interest upon its investment, as measured by the present value of its property devoted to the public service, assuming the prices of labor and materials entering into the manufacture and distribution of gas to remain unchanged, and that gas of 22 candle-power is delivered, will be $1.05 per thousand cubic feet sold to the public. If gas having a calorific content of 585 B.t.u.'s is delivered, the actual cost on this basis will be $1.01 per thousand cubic feet.

"By the term 'investment as measured by the present value of the property,'" Mr. Carter said, "is meant the cost of reproducing the property at present day prices. Measured by the standard of present day prices, the investment in the properties employed in its gas business by the Consolidated Gas Company amounts to not less than $89,411,465. It is our contention that a just and reasonable profit over and above the bare interest cost of money invested, should be included in the rate.

"A just and reasonable rate proportionate with the quality and power of gas manufactured, distributed or sold, even if the standard were fixed at 585 B.t.u.'s, would have to be substantially higher than the present statutory rate of 80 cents. Any lower rate for gas of a calorific content below the equivalent of 22 candle-power, based upon the assumption that the 80-cent rate is just and reasonable, would be an unjust and unreasonable rate,. and therefore an illegal rate, and one which the company and its affiliated gas companies could not accept.

"To undertake to substitute for the present candle-power standard an equivalent calorific standard would be of doubtful utility or expediency," Mr. Carter continued. "The opinion of experts is to the effect that there is no exact relationship between the illuminant and calorific content of 1,000 cubic feet of gas. This statement is confirmed by many tests. Therefore, all attempts to determine the calorific equivalent of 22 candle-power must be, at best, an uncertain and doubtful approximation.

"If, in order to enable the Consolidated Gas Company and its affiliated gas companies to produce toluol for the United States Government, the Commission were to prescribe in lieu of the present 22 candle-power standard, a calorific standard of 585 B.t.u.'s, corresponding with the standard prescribed by the Second District Commission, the loss which the Consolidated Gas Company and its affiliated gas companies are sustaining from their operations at the present price of gas, would be somewhat, though not considerably, diminished. The gas which would then be supplied at the 80-cent rate would cost 91.4 cents to produce and deliver.

"So far as the use of gas for illumination with incandescent mantles is concerned," Mr. Carter said, "a substitution of a 585 B.t.u. standard for the 22 candle-power standard would have no appreciable effect, except to increase the efficiency of the service and the life of the mantle. Considered from the standpoint of the flat-flame burner, it is practically impossible to distinguish between the light produced in two burners consuming the same quantity of gas, one being supplied with gas of 22 candles and the other supplied with gas containing 585 B.t.u.'s per thousand cubic feet.

"The investment in the property of the Consolidated Gas Company on July 31, 1917," Mr. Carter continued, "based upon the findings of the court in the Eighty-cent Gas Case, excluding all the property not presently employed in the company's business, amounted to not less than $62,210,064. Interest on this amount at 6 per cent amounts to $3,732,603, which, added to the other expenses for the nominal year ending July 31, 1917 ($11,786,200) makes the total expenses for that property $15,518,804. The gross earnings from the sales of gas and from other operating income amounted to $14,534,054, showing that the excess of expenses over gross earnings amounted to $984,749. Based upon current prices for labor and materials and assuming no increase in the investment or in the output of gas, the actual cost for gas for the ensuing year will exceed the gross revenue to the extent of $2,533,794."

Spirit of Modern Merchandising Places Mutual Responsibility Upon Manufacturer and Retailer

A very attractively gotten-up folder, distributed by the Ruud Manufacturing Company of Pittsburgh, Pa., brings out such logical opinions regarding co-operation between the manufacturer and the distributor that it is well worthy of reprint, as follows:

Your Prerogative

Organization, system, method, these are the watchwords of business to-day. An age of puny, individual effort has been succeeded by one of co-operation. Manufacturer and distributor have awakened to the fact that theirs is a common cause, that success for one means success for the other. To-day, the manufacturer who is unwilling to take upon himself the burdens of the retailer, the retailer who through shortsightedness refuses the co-operation of the manufacturer, is a forlorn survivor of the paleolithic period, a Rip Van Winkle from the times when small things were done in a small way. Modern business has come to realize that there is a mutual responsibility upon manufacturer and distributor. It is the manufacturer's duty to lend the full strength of his organization to the man who handles his goods; it is the distributor's right to demand such co-operation and his duty to himself to make the utmost use of it. To just what extent are you taking advantage of these merchandising forces of modern business which are rightfully yours? Have you culled from your list of manufacturers whose appliances you handle those who still refuse to believe that it is their duty, their privilege, to co-operate with you in moving goods from your salesroom? Are you, as a believer in modern methods of merchandising, lending your support to the manufacturer who does realize that it is his business to sell gas appliances for you? In other words, are you, as it is your right to do, demanding the manufacturer's co-operation in selling goods or are you allowing him to shift the entire burden of responsibility on to your shoulders? The Ruud Manufacturing Company heartily believes in the spirit of modern merchandising. We believe that the work of selling the Ruud Water Heater to the user is as much our business as it is yours. We believe it would be unjust of us to ask your co-operation in placing Ruud Water Heaters on your mains unless we could offer you an organization, a system, a method, which had proved themselves so capable, so sure of making your sales-rooms a genuine clearing house for Ruud Water Heaters that your success would be assured. Nor do we believe that in offering you co-operation of this sort we are giving you anything that you have not a right to expect and demand. Such co-operation is not benevolence. It is justice, nothing more. We have no desire to see you out in the mud cranking when you are entitled to that great self starter of business—the co-operation of a manufacturer financially able and willing to work with you for mutual success.

Publicity That Makes for Big Results During National Gas Lighting Week

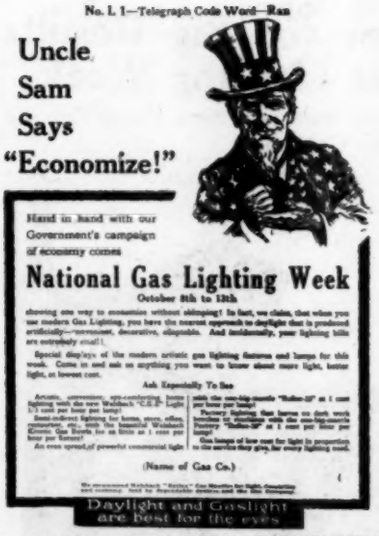
Window Display Which Is Distinctly Different and Novel Offered by the Welsbach Company

In an effort to assist and stimulate the gas companies to greater action and to bring about increased sales for gas during Lighting Week, Oct. 8-13, this company has arranged a unique window display, backed up by a complete newspaper advertising campaign, all of which it offers to every gas company.

BRILLIANTLY COLORED WINDOW DISPLAY PRODUCES A MOST NOVEL EFFECT AT NIGHT

The magic cutout display piece as shown in above reproduction for Lighting Week windows is about 36 in. long and 32 in. high; lithographed in eleven colors, with the most brilliant effect. The chief feature of this display is the illuminated advertising sentence which travels in a bank of colored clouds across the face of a moon, which is represented as setting behind a group of suburban houses. The whole color scheme is that of moonlight with the exception of the Oriental Magician's brilliantly colored robe which is brightly lighted by a "C.E-Z" lamp held in the left hand of the figure. The Magician is represented as touching the moon with his magic wand with the result that the following sentence, in brightly illuminated letters travels over the moon in a helter-skelter manner: "MAKE YOUR HOME BRIGHT WITH A 'C.E-Z' GAS LIGHT." In fact, the individual gas company may substitute any advertising sentence or words, and bring about the same effect.

The Orange County (N. Y.) Lighting Company has changed hands and is now the Orange County Public Service Corporation with offices in Philadelphia.


No. L 1—Telegraph Code Word—Ras
Uncle Sam Says "Economize!"
Hand in hand with our Government's campaign of economy comes
National Gas Lighting Week
October 8th to 13th
Ask Especially To See
(Name of Gas Co.)
Daylight and Gaslight are best for the eyes

ADVERTISING GAS FROM AN ECONOMIC AND PATRIOTIC STANDPOINT

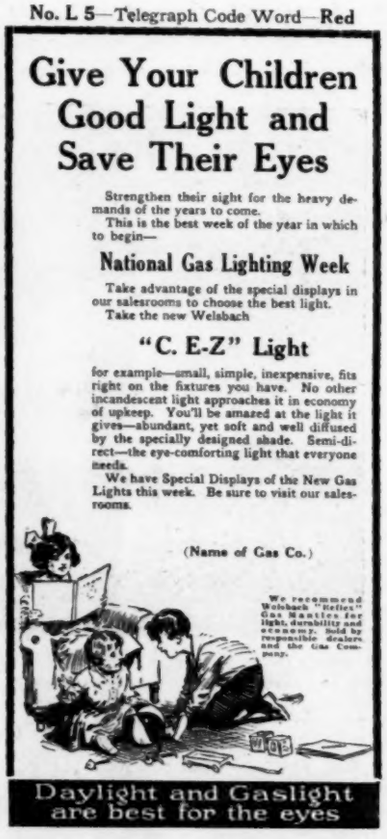
This display has been shown to some of the biggest advertising men and gas company managers in the country. Without exception, they pronounced it in the front rank of unusual and effective advertising pieces. This display will be shipped to gas companies through the Welsbach departments in time for use during and after Lighting Week.

One of the features of the Welsbach magic display is that no machinery is required to operate it. A piece of wire, a piece of sheet metal and a piece of paper, which are furnished with the display with directions for assembling with a "C. E-Z" are all that are required to obtain the mystifying moving picture effect.

Seven distinctive newspaper adplates have been made ready by the Welsbach Company for the use of gas companies during Lighting Week. Three of these advertisements are reproduced on this page. These plates are furnished free of charge upon request from the gas companies. A large proof sheet showing all the plates has been sent to new business managers letter from the Welsbach Company advertising manager, requesting that the plates be ordered entirely at the expense of the Welsbach Company. Through these ads the gas company which has no advertising department is enabled to advertise its Lighting Week with ads prepared by prominent advertising artists working with high salaried advertising writers of long experience.

There are four poster hangers on the "Reflex" and "C.E-Z" mantles, lithographed in strong colors. Three long strips on the "Reflex" mantle and "C.E-Z" light and National Gas Lighting Week, which are designed for tops of windows are also included in the advertising material offered.

There are three Window Transparency Sets, two on the "Reflex" mantle and one on the "C.E-Z" Light.


No. L 5—Telegraph Code Word—Red
Give Your Children Good Light and Save Their Eyes
Strengthen their sight for the heavy demands of the years to come.
This is the best week of the year in which to begin—
National Gas Lighting Week
Take advantage of the special displays in our salesrooms to choose the best light.
Take the new Welsbach
"C. E-Z" Light
for example—small, simple, inexpensive, fits right on the fixtures you have. No other incandescent light approaches it in economy of upkeep. You'll be amazed at the light it gives—abundant, yet soft and well diffused by the specially designed shade. Semi-direct—the eye-comforting light that everyone needs.
We have Special Displays of the New Gas Lights this week. Be sure to visit our salesrooms.
(Name of Gas Co.)
We recommend Welsbach "Reflex" Gas Mantles for light, durability and economy. Sold by responsible dealers and the Gas Company.
Daylight and Gaslight are best for the eyes

ADVERTISEMENT WITH A HOME APPEAL

Costs of Gas and Coal Cooking Compared

A comparison of the cost of cooking with gas and with coal has been formulated by W. A. Robinson of the Spencer (Mass.) Gas Company, and published in *Service Talks*. Gas is $1.50 per 1,000 ft. at Spencer, and coal is about $9.50 at retail.

According to Mr. Robinson, 33 cu. ft. (or 5 cents' worth) of gas will fire an ordinary gas range burner 1 hour, 50 minutes; a giant range burner 1 hour, 36 minutes, or a large range oven burner 50 minutes.

A specimen breakfast of cream of wheat, toast, bacon and eggs and coffee, may be cooked for a family of six persons for 3 cents with the use of gas.

A dinner for six, consisting of soup, roast beef and mashed potatoes, green corn, blueberry pie, tea or coffee, costs 8 cents for gas fuel. Likewise, a supper of lobster salad, French fried potatoes, rolls, cake and tea or coffee, is cooked for 6 cents. For coal, the cost would be much more.

No. L 3—Telegraph Code Word—Rap
All Over The Land This Is Gas Lighting Week
This week we are specially prepared to introduce to you the latest advances in Modern Gas Lighting.
Gas is next to daylight in illuminating quality. Its fixtures and lamps are carefully designed by scientists and artists. It is the most economical artificial light obtainable to-day. It is dependable—always on the job. There is no more convenient form of lighting.
Be our guest at least once during
National Gas Lighting Week
Let us show you how this new gas lighting can benefit you.
(Name of Gas Co.)
Daylight and Gaslight are best for the eyes

AD-PLATE SUGGESTION SHOWING NATIONAL SCOPE

Fourteen Employees of the Central Hudson Company in National Service

The Central Hudson Gas & Electric Company, Poughkeepsie, N. Y., announces that up to the present time the following fourteen employees have enlisted in the military and naval service of the United States:

R. Beacham,	R. B. Thompson,
A. Cooney,	W. Coughlin,
W. Rogers,	A. R. Wellwood,
F. H. Porter,	J. O. Fuchs,
C. H. Bahret,	T. Corby,
Luther Kemp,	E. Hunt,
T. Carroll,	R. W. Harris.

The Young Lady Employees' Club is furnishing boxes of food, tobacco, magazines, clothing, etc., to the drafted men of the company.

This Journal is indebted to P. A. Burnes, secretary of the company, for the foregoing information.

New Jersey Commission Hears Increase Appeal

The New Jersey Public Utility Commission gave a hearing at the Camden court house recently on the petition of the New Jersey Gas Company, which operates in Gloucester, Cumberland, Salem and parts of Camden Counties, for permission to increase its rates in all its territory, including the borough of Vineland and the township of Landis.

The company wants the right to raise the present rate of $1.50, less 8 per cent discount, or a flat rate of $1.38 per 1,000 cu. ft., to a flat rate of $1.50. It also asks that the Citizen's company, a competing corporation in the borough of Vineland and Landis township, be compelled to raise its rate to $1.50 if the commission grants the application. The petitioner argues that the present high cost of operation warrants the granting of its plea. It also charges that the Citizens' Company is engaged in unlawful competition.

J. C. Lightfoot, secretary and treasurer of the gas company, presented figures during eight months of the years from 1913 to 1917, which showed the following: 1913, $4,082.21 profit; 1914, $2,960.47 profit; 1915, $2,227.91 profit; 1916, $5,974.18 profit; 1917, $8,475.67 deficit. The latter loss he ascribed to the increased cost of materials, such as coal, oil and labor, due to war conditions. There has been a steady increase of gross income, but the price of everything has so jumped as to cut down the profits. While in 1916 the cost of operation was $84,378.55 for the eight months, this year it has been $112,862.83. The application is being opposed by H. A. Bartlett, of Vineland, counsel for the Citizens' Gas Company, and by counsel for the borough of Vineland and Landis township.

The New Jersey Northern Gas Company, which supplies gas in Lambertville, Flemington, Hopewell, Pennington, Ringoes and Stockton, has filed a petition with the State Board of Public Utility Commissioner asking for a further hearing upon its application to increase its charge for gas. After a hearing held upon the company's application, received by the department some time ago, the board stated that from the testimony submitted by the company it appeared evident that if the high cost of the manufacture of gas continued, additional revenue would be needed, but that the testimony submitted by the company was not such that the board would consider the increase proposed would be fair and reasonable to all classes of the company's consumers.

In its application for a further hearing the gas company states that the high cost of manufacture has continued; that it has been compelled to increase the salaries of its employees, and that it is prepared to show the probable result from the proposed increase and to offer further proof that the service charge proposed by it bears a proper relation to the cost of the company's readiness to supply service.

The board has notified the company and the municipalities served by it that the application will be made the subject of a further hearing at a meeting to be held at the State House, Tuesday, Sept. 25, at 11 a. m.

Charles M. Cohn Heads Committee for Baltimore National Army Parade

In the parade on September 5 in honor of the Baltimore men selected for the National Army, the usual good appearance was made by the

CHARLES M. COHN

men of the Baltimore Gas & Electric Company. Charles M. Cohn, vice-president, was chairman of the committee on arrangements which planned the entire public demonstration. He was ably assisted by Herbert K. Dodson and W. H. Cassell.

Poetic Appeal Jars Sensibilities of Gas Company Management

There are two kinds of masons. One is content to merely do a good job. The other likes to put a finish to his work. The first builds a sidewalk in a workmanlike manner and with due precaution against destructive agencies. The second does all of this and with a few hasty strokes at the end puts on a finish or a few grooves here and there which makes his product more pleasing to the eye and distinctive. The Gage County Gas, Light and Power Company management, which serves Beatrice, Neb., has tendencies similar to the second class of masons. The poetic effusion reproduced herewith must have caused some consternation in the office until its ending revealed it to be signed merely by initials. If its author had been reduced to the dire straits he pictures himself in, he would not have neglected to aid the company to locate him. The communication came in addressed to Thomas Rice, the general manager of the company.

To Manager Rice.

Once more upon my bended knees
I ask you, Tommy, won't you please
Come up some afternoon this week
And try and find this blamed old leak
Before we get so full of Gas,
We through ıe Pearly Gates will pass.
I am not ready, yet to go
I rather like it here below,
Where I can count my friends galore,
Who will not reach that Golden Shore,
But lower climates they will seek
Unless they come and fix that leak.
I think I've mentioned once or twice
To you in person, Tommy Rice,
About this constant nasty smell
Which makes you want to cuss like ——.
It takes the joys of home away,
My raven locks have turned to gray,
My feeble frame its grave will seek
Unless you come and fix that leak.

W. W. D.

Mayor Urges Consumer Strike at Everett, Mass.

The people of Everett, Mass., were called upon recently by Mayor Mullen, at a rally in Glendale Square, to strike against the recent increase in the price of gas and to discontinue its use until the Malden & Melrose Gas & Electric Company reduces the price.

Mayor Mullen told the 600 persons that attended the open-air demonstration against the recent raise in price from 90 to 95 cents that he would give the gas company 10 days in which to determine whether to lessen its price.

Appeal to Washington Made by Michigan Company for Coal

The shortage of fuel, felt throughout the nation by public utility corporations, has hit the Mt. Clemens, Mich. plant, to the extent that unless shipments, now said to be enroute for Mt. Clemens, arrive within another two weeks, the gas company will be forced to shut down, and consumers will necessarily be compelled to resort to other forms of fuel.

In support of this statement Mr. Speer, manager of the Mt. Clemens Gas Light Company submitted to the newspapers a copy of a telegram sent out shortly after to the national Committee on Gas and Electric Service, at Washington, D. C. It follows:

"The Consolidation Coal Co. is one thousand tons short on our contract. Only six cars are rolling and none have been shipped this month. Our supply will be exhausted within two weeks. Coal company claims the government is taking their output and they further advise this morning that an embargo has been placed on commercial shipments which affect us. CAN YOU DO ANYTHING FOR US? HURRY REPLY.

"Mt. Clemens Gaslight Co."

City to Help Company Conserve Indianapolis Gas Supply

The Board of Public Works of Indianapolis and B. J. T. Jeup, city engineer, promised J. D. Forrest, general manager of the Citizens' Gas Company, at a recent conference, that they would give the company assistance next winter in stopping the unnecessary consumption of gas in order to conserve the city's gas supply for ordinary uses during the fuel crisis that is the outgrowth of war conditions.

Mr. Jeup expressed the wish that Mr. Forrest make a detailed report to the board on the gas situation as soon as possible, in order that some plan may be worked out to conserve the gas supply for ordinary uses. Following the conference he said the plan of having the company report cases of increased consumption to the city, in order that the city might send inspectors to the homes of heavy consumers of gas to demand that gas be used only for the ordinary purposes, now seems to be the most feasible.

Want to Create Office of Gas Expert at Cincinnati, O.

The Madisonville Business Men's Club will have read before Cincinnati Council at its next meeting a letter relative to the prevention of a gas shortage in Cincinnati next winter.

The letter, which is addressed to Council, states that the club is mindful of the gas shortage which occurred a number of times last winter, and that it fears a recurrence and asks that Council establish by ordinance the position of Gas Expert and that a gas expert be employed whose duties shall be to inspect the meters, make pressure tests and analyze the quality of the gas supplied. It is also suggested that the Director of Public Service establish a number of pressure gauges in various sections of the city, especially at outlying points, and that where failure of gas pressure is reported, Council, shall direct the City Solicitor to bring suit for proportionate reduction of charges.

Gas Company Restrained from Enforcing Minimum Charge

Holding that the minimum gas bill system as employed by the Allegan County Gas Company, Otsego, Mich., is illegal, Judge Wiss B. Perkins in Circuit court recently granted the petition of the village of Otsego asking for an injunction restraining the company from making and enforcing a so-called "minimum charge."

Judge Perkins in his ruling does not deny the company the right to remove its meters from a house where no gas has been used for a month, according to the terms of the franchise, but he does hold that a company can not make such a rule and then demand that the minimum charge alternative be used.

The Allegan company, working under its Otsego franchise, had the privilege of placing a meter in a consumer's home and in case no gas was used to either remove the meter or charge 75 cents. Recently, however, it was disclosed, the company endeavored to enforce the 75-cent charge on all consumers who had not used that much gas during the month, it is said, thus establishing "a minimum charge" system. It is this practice that has been prevented by Judge Perkins' ruling.

Shall There Be Further Control of Prices During the War?

A referendum to ascertain business opinion on price control is being sent forth by the Chamber of Commerce of the United States which carries a committee recommendation that the National Chamber favor additional legislation to create authority to control prices during the war. Business organizations throughout the United States will have an opportunity to vote for or against such a recommendation and forty-five days will be given to them to discuss the subject.

The question is raised at a particularly interesting time, in view of the number of important questions about prices which have recently developed. The referendum, it is said, will show exactly where the principal organizations of the country stand on the subject.

Industrial Rates Increased by West Virginia Company

Commercial consumers of gas sold by the United Fuel Gas Company will be forced to pay an increase of one cent on each 1,000 cubic feet of gas, beginning Oct. 1, according to an order issued recently by the Public Service Commission.

This increase affects only consumers in Charleston, Coalburg (W. Va.) and vicinity, and the reason for the allowance of the increase was because the commercial consumers agreed the order shall be effective only until final determination of the proceeding, or until the further order of the commission.

Domestic consumers will not be affected.

The evidence on the petition to change rates was submitted by the gas company recently, and the case has not yet been entirely completed by the commission.

Until a final decision is rendered, either in favor of the gas company or in favor of the citizens of Charleston, Huntington, Ceredo and Kenova, the one-cent increase will hold good.

Coal Congestion at the Great Lakes

Loaded coal cars from the West Virginia mines intended to relieve the serious coal famine in the Northwest are clogging switch tracks for miles at practically all the Great Lakes ports.

Portland Company Seeks Lower Heat Unit Standard and a Longer Period Between Meter Tests

Reduction of heat unit standard and lengthening the required period within which gas meters are to be tested is asked by the Portland (Ore.) Gas & Coke Company, in its recent application to the Public Service Commission for modification of two of the commission's rulings.

Certain economies in operating expense and savings in operating income would result from these modifications, according to John A. Laing, vice-president and general counsel of the corporation, who was recently asked to discuss the application. A slight increase in cost to the consumer of gas, amounting to about 60 cents a year for the average household, would be one of the results of lowering the heat unit standard, according to Mr. Laing.

The Public Service Commission's rule 13 fixes the heat unit requirements for oil gas at 570 B.t.u. Rule 17 provides not only that the company must test a meter at any time on demand of the consumer, but that all gas meters must be removed and tested at least once in five years.

The gas company asks that the standard for heat units be reduced from 570 to 550 B.t.u., and that the meter testing be made only once in 10 years.

Mr. Laing in explaining the difficulties the company had to contend with brought out some interesting facts in regard to the comparison of the 550 and 570 B.t.u. standard, which are as follows:

"The modification requested in the other rule is a re-establishment of the 550 B.t.u. standard in force from July 1, 1914, to January 1, 1915. On the latter date the standard was increased to 570 B.t.u., resulting in additional expense to the company of several hundred thousand dollars, which has not been compensated by other factors. On the contrary it has been aggravated by greatly increased taxes, labor and material costs, especially in 1917.

"The earlier 550 thermal unit standard was entirely satisfactory for all purposes to the consumer. The increase was made simply because certain precedents established elsewhere in the country, under different conditions, had fixed a higher B.t.u. standard.

"Our earnings this year will be $125,000 less than in 1914, before the standard was raised. This is based on the statement for the first six months. The five year meter testing rule costs us $5,000 extra a year. It is to save these costs that the application now pending before the commission was made."

New Hampshire Company Sends Personal Letter to Each Protest Signer in Rate Case

Superintendent A. J. Smith of the Concord Light & Power Company recently sent a personal letter to each of the 450 or more signers on the protest against the meter charge instituted by the gas company. The protest was filed with the Public Service Commission and the Commission has announced that it may be obliged to investigate the entire financial history of the gas company.

Superintendent Smith in his letter explains that the 25-cent charge was approved by the Public Service Commission and in stating the increase in cost of gas manufacture, invites those who are not convinced by his statement to call at the office and have the service charge, and the reasons for imposing it, explained in the greatest possible detail. He reiterates that when prices return to normal the meter charge will be discontinued. His letter follows:

Dear Sir:—

"We have received a copy of your petition in regard to the service charge recently sanctioned by the Public Service Commission.

"We believe an explanation of our situation at this time is due our customers.

"Shortly after the beginning of the European war in 1914 the prices of raw materials entering into the manufacture of gas began to rise. They have continued to rise since that time until at present they are from 100 to 200 per cent higher than in normal times.

"We refer especially to coal and oil which two items alone are costing us about $16,000 more this year than last year, and there are other smaller things for which we are also paying abnormal prices, so that during the last four months this company has actually been operating at a loss.

"In order to maintain our service during these unusual times it became necessary for the company to either raise the rates for gas or devise some other means of producing additional revenue.

"The matter was taken up with the Public Service Commission and after consideration it seemed best to make a temporary charge of 25 cents per month per meter, which would in part only enable us to meet our present high expenses, and this charge was approved by the commission.

"The company has written the commission that as soon as normal prices again prevail this service charge will be discontinued, and such rates made at that time as may be fair and reasonable.

"In view of the above facts, we believe you will see the necessity of our making this service charge at this time.

"It is our business to serve the public, and if any of the signers of the petition desire to talk with us about the service charge, we shall be glad to have them come in.

"Very truly yours,
"Concord Light & Power Co.,
"A. J. Smith, Supt."

Kansas City Consumers are Willing to Pay for $1 Artificial Gas to Insure Supply

Jacob Geisburg, chairman of the Kansas City Chamber of Commerce gas committee, made public the referendum vote on gas matters recently. One hundred and eighty-six votes were cast; 113 were for 60-cent natural gas with supply guaranteed; 58 were against it. One hundred and forty-four voted against the 60-cent rate unless guarantee was positive.

More than 50 per cent said they would prefer $1 artificial gas with supply guaranteed to 60-cent natural as now furnished.

Texas Gasser Controlled After Considerable Trouble

Through the efforts of B. C. De Witt, special representative of the company, the gasser of the Southern Gas Company, in the White Point territory, Tex., was harnessed and the well is now under absolute control.

Mr. De Witt handled a task that few men would care to try. While gas, water and rocks were shooting from the hole, he crawled under the derrick and worked for 45 minutes and finally was successful in shutting the gate valve that was in a most inaccessible place. When he finally crawled from under the derrick he plainly showed the effects of the gruelling work.

Ocean View, Va., Wants Gas Service

There are 5,000 permanent residents in Ocean View, Va., and they believe they are entitled to have gas piped to them. If not, they will take other steps to get gas. At a meeting held in the rooms of the Business Men's Association, the permanent gas committee was instructed to take the matter into consideration immediately.

Personal Notes

J. M. H. YOUNG, the new president of the Canadian Gas Association, started his career as a gas man in 1893, while living at Allegheny, Pa. In 1896 he accepted the managership of the Southside Gas Company at Pittsburgh, Pa. In 1900 he became manager of the Joplin (Mo.) Gas Company, and about six years later left to accept the superintendency of the City Gas Company of London, Canada, which position he still holds. He was one of the first members of the Canadian Gas Association and has always taken an active interest in its affairs.

J. M. H. YOUNG

RICHMOND E. SLADE, for many years engineer with the Providence (R. I.) Gas Company, has recently resigned. His successor has not as yet been named.

EUGENE B. FRAZER, treasurer of the Lynn (Mass.) Gas & Electric Company, has been appointed a member of the special committee who will look after the interests of Gov. Samuel W. McCall in his contest for the Republican nomination for governor.

JOHN A. BLAKE, president and director of the Ipswich (Mass.) Gas Light Company, died recently. He was vice-president of the Ipswich Savings Bank and a member of Agawam Lodge, I. O. O. F., and John T. Heard Lodge, A. F. & A. M.

W. B. KEFFER, assistant secretary of the Des Moines (Iowa) Gas Company, died Sept. 14, 1917. He joined the staff of the gas company twenty-eight years ago, when there were less than 300 meters and his duties included reading meters and making collections. Mr. Keffer was prominent in civic affairs and a member of the Red Men and Masonic Lodge.

Societies and Associations

THE TEXAS GAS ASSOCIATION will hold its second annual meeting Oct. 16 and 17 at the Adolphus Hotel, Dallas, Texas, plans for which were completed recently at a meeting of the directors of the association. The business sessions will be devoted largely to the discussion of problems that have presented themselves to members of the association. Papers dealing with special phases of the business will be read. The entertainment program includes a banquet and a theatre party. The directors present at the meeting were M. T. Walker, Beaumont; F. J. Storm, Amarillo; W. H. Clifford, Palestine; C. B. McKinney, Denison and C. H. Seidenglanz, Dallas.

Construction Notes

New Company Formed at Burlington, N. C.

Well-known capitalists and business men at Burlington, N. C., have incorporated the Burlington Gas Company, the capital stock being placed at $100,000. The object is to build up-to-date gas works with ample equipment for supplying gas for heating and cooking purposes, as well as for lighting.

Twenty Cottages to Be Built for Pacific Company Employees

The Pacific Gas & Electric Company has let a contract for twenty frame cottages at Bay Point, Cal., for its employees. F. R. Peake of Berkeley being the successful bidder. Each building will be a story and a half structure, with Oregon pine finish inside.

Rhode Island Companies' Connection Nearly Completed

Operations in connecting the gas plant of the Bristol County Gas & Electric Company of North Main Street with the mains of the Providence Gas Company at Providence, are progressing well, and soon there will be a flow of illuminating gas to aid the overworked gas plant in this section. The pipes are now being laid over the span of Kelley's bridge, and the connections with the gas plant are being set up.

Gas Lights Are Being Given a Trial at Dayton, O.

S. M. Tittle, local manager of the Welsbach Gas Light Company, at Dayton, O., has received permission from city officials to install a system of gas boulevard lights on Second Street between Jefferson and St. Clair Streets to demonstrate the value of this kind of lighting.

The lights will be installed at the expense of the Welsbach Company and maintained for a period of thirty days. All of the boulevard lighting in the city at the present time is with electric lights.

River Supply Tapped for Quenching Coke, Etc.

An economical water supply for quenching coke, filling empty barrels, sealing, etc., has been devised and put in operation by the Northampton (Mass.) Gas Light Company. The city water supply is used in part, but to reduce the consumption of city water, a pipe line has been laid to an intake in Miller's River, which is but a hundred feet from the works. It was necessary to waterbore under a four-track railroad line to reach the river, where a barrel with ¾-in. holes in all its sides was sunk to water level and the barrel surrounded with stones a distance of about 10 feet around it, to prevent sediment reaching it.